

Application No.: 09/894,912

Docket No.: 30266/37260A

REMARKS**I. Restriction and Election**

Citing 35 U.S.C. § 121, the Examiner alleged that claims 1-74 were drawn to 15 distinct inventions (Groups A-O). Additionally, the Examiner restricted claims 1-74 alleging the claims are drawn to 16 distinct inventions (Groups 1-16). The Examiner also further restricted claims 1-74 alleging the claims are drawn to 10 distinct inventions (Groups 17-38). Therefore, this is a response to a 41-way restriction requirement.

The Applicants hereby elect **Group N**, which includes claims 62-65, drawn to methods of supporting proliferation or survival of a stem cell or germ cell, *with traverse*. The Applicants also elect **Group 3**, which includes methods of using the nucleotide sequence of SEQ ID NO: 12, *with traverse*. Further, the Applicant elect **Group 17**, which includes methods using the amino acid sequence of SEQ ID NO: 13, *with traverse*.

II. Restriction of SEQ ID NOS: 9, 12, 31 and 33 and SEQ ID NOS: 10, 13, 32 and 34 are improper.

Applicants respectfully traverse the restriction of the stem cell factor nucleotide sequence SEQ ID NO: 12 (Group 3) from the sequences of Groups 1, 4 and 5. The Applicants also traverse the restriction of the stem cell factor amino acid sequence SEQ ID NO: 13 (Group 17) from the sequences of Groups 16, 19 and 20. SEQ ID NO: 13 is the amino acid sequence encoded by the cloned full length stem cell growth factor like polynucleotide sequence (SEQ ID NO: 12). The amino acid sequence of SEQ ID NOS: 34 and 13 are 99.6% identical wherein SEQ ID NO: 13 has one additional glycine at residue 2. Also, SEQ ID NO: 31 encodes a species homolog (SEQ ID NO: 33; ortholog) of SEQ ID NO: 34. The murine ortholog is 86.4% identical to the amino acid sequence of SEQ ID NO: 34.

The broad claim 62 is directed to methods using a polypeptide that is 85% identical to the polypeptide of SEQ ID NO: 13. Dependent claims 75 and 76 claim two additional sequences (SEQ ID NOS: 32 and 34) that are encompassed by the genus claim. In addition, the specification provides evidence that these species, similar to the polypeptide of SEQ ID NO: 13, support proliferation and survival of stem and germ cells as required by the genus claim. Therefore it is not a serious burden on the Examiner to examine methods using

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the polypeptides of SEQ ID NOS: 13, 32 and 34 at one time. A general sequence search of SEQ ID NO: 13 in relationship to claim 62 would be expected to uncover any prior disclosure of the amino acid sequences of SEQ ID NO: 34, as well as its ortholog (SEQ ID NO: 32) as well as prior disclosure of the nucleotide sequence of SEQ ID NO: 12.

III. Support for Claim Amendment

The amended claims are supported by the specification and do not add new matter to the application. A marked up version of the amendments are attached hereto as Appendix A. For the convenience of the Examiner, the pending claims after entry of the amendment are set out in Appendix B.

In particular, amended claim 62 is directed to methods of supporting proliferation or survival of a stem cell or a germ cell using a polypeptide that has an amino acid sequence that is at least 85% identical to SEQ ID NO: 13. Polypeptides of the invention that are 85% identical to SEQ ID NO: 13 and retain biological activity are supported at page 72, lines 23-30. Methods of determining polypeptide identity are described at page 77, lines 5-25.

Amended claim 64 is directed to a method of supporting proliferation or survival of stem cell or a germ cell using a polynucleotide that hybridizes under stringent conditions to the nucleic acid sequence of SEQ ID NO: 12. The recited hybridization conditions are supported at page 27, lines 5-11 and page 40, lines 16-20.

New claims 74-76 are directed to amino acid sequences that are supported in the specification. The mature protein coding portions of these polypeptides are described in the specification at page 39, lines 1-16. The nucleotide that encode the mature stem cell growth factor like polypeptide are set out at page 39, lines 17-25.

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CONCLUSION

The Applicants traverse the 41-way restriction requirement in general. The Applicants reserve the right to make additional traversal arguments in the future as they apply to particular elected groups.

Dated: March 14, 2003

Respectfully submitted,

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APPENDIX A
MARKED UP VERSION OF CLAIM AMENDMENTS

62. (Amended) A method of supporting proliferation or survival of a stem cell or germ cell comprising contacting said cell with an amount of a polypeptide [of claim 23] having an amino acid sequence at least 85% identical to SEQ ID NO: 13, or the mature protein coding portion thereof, wherein said amount is effective to maintain survival of or promote proliferation of said cell.

64. (amended) The method of claim 62, wherein the polypeptide comprises [an] the amino acid sequence of SEQ ID NO: 13, or the mature protein coding portion thereof: [10, 13 or 16 or comprises an amino acid sequence 90% identical to SEQ ID NO: 10, 13, or 16.]

65. (amended) The method of [claim 62] supporting proliferation or survival of a stem cell or germ cell comprising contacting said cell with an amount of a polypeptide, wherein the [stem cell growth factor-like] polypeptide is encoded by a polynucleotide that hybridizes to the complement of [a polynucleotide encoding SEQ ID NO: 10, 13, or 16] the nucleotide sequence of SEQ ID NO: 12, or the mature protein coding portion thereof, under the following stringent hybridization conditions: a final wash of 0.1x SSC/0.1% SDS at 68°C, wherein the amount is effective to maintain survival of or promote proliferation of said cell.

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**APPENDIX B
PENDING CLAIMS AFTER ENTRY OF THE AMENDMENT**

62. (Amended) A method of supporting proliferation or survival of a stem cell or germ cell comprising contacting said cell with an amount of a polypeptide having an amino acid sequence at least 85% identical to the amino acid of SEQ ID NO: 13, or the mature protein coding portion thereof, wherein said amount is effective to maintain survival of or promote proliferation of said cell.

63. The method of claim 62 wherein said cell is a primordial germ cell, germ line stem cell, embryonic stem cell, hematopoietic stem cell, hematopoietic progenitor cell, pluripotent cell, or totipotent cell.

64. (amended) The method of claim 62, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 13, or the mature protein coding portion thereof.

65. (amended) The method of supporting proliferation or survival of a stem cell or germ cell comprising contacting said cell with an amount of a polypeptide, wherein the polypeptide is encoded by a polynucleotide that hybridizes to the complement of the nucleotide sequence of SEQ ID NO: 12, or the mature protein coding portion thereof, under the following stringent conditions: a final wash of 0.1x SSC/0.1% SDS at 68°C, wherein the amount is effective to maintain survival of or promote proliferation of said cell.

74. (new) The method of claim 62, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 32, or the mature protein coding portion thereof.

75. (new) The method of claim 62, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO: 34, or the mature protein coding portion thereof.